

REMARKS

Reconsideration and allowance of the subject application are respectfully requested. By this Amendment, Applicant has added new claims 7-12. Thus, claims 1-12 are now pending in the application. In response to the Office Action (Paper No. 4), Applicant respectfully submits that the pending claims define patentable subject matter.

Claims 1-6 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite because the Examiner maintains that the language of independent claim 1-3 is unclear and ambiguous. By this Amendment, Applicant has amended claims 1-3 to improve clarity. Accordingly, the Examiner is requested to remove the § 112, second paragraph, rejection of record.

Claims 1-6 stand rejected under 35 U.S.C. §102(e) as being anticipated by or, in alternative, under 35 U.S.C. §103(a) as obvious over, Armellin (USP 6,244,315). Applicant respectfully submits the claimed invention would not have been anticipated by or rendered obvious in view of the cited reference.

Armellin (Figures 1 and 4) discloses a belt structure which comprises a radially internal reinforcing layer 9 including two radially superimposed strips 9a and 9b of rubberized fabric consisting of reinforcing elements 9c incorporated in an elastomer matrix. The reinforcing elements 9c, which are parallel with one another in each strip, are oriented in two directions intersecting one another in the two strips and preferably symmetrically inclined with respect to an equatorial plane X--X. The reinforcing elements 9c form angles v and w with respect to the equatorial plane which are between 18 degrees and 50 degrees. The superimposed strips 9a and

9b strips may be interrupted in the region of the equatorial plane, resulting in a zone of width "a" which is preferably between 10% and 30% of the axial extension of said belt and in which only circumferentially directed reinforcing cords 7 are present.

The present invention relates to a method of mounting a pneumatic radial tire comprising a spiral belt and a pair of cross belt members, wherein cords of the pair of the cross belt members are arranged in particular manner with respect to a forward rotating direction of the tire. In particular, the present invention provides a method of mounting the tire in which the inclinations of the cords in the cross belt members are arranged in an inverted herringbone form (or bottomless V shape) when mounting the tire on a front wheel of a vehicle, and a herringbone form (or bottomless inverted V shape) when mounting the tire on a rear wheel of a vehicle.

Independent claims 1 and 2 recite "a method of mounting a pneumatic radial tire comprising ... a pair of cross belt members arranged in parallel to each other in a common plane in a circumferential direction of the tire so as to be disposed on opposite sides of an equatorial plane of the tire and separated by an opening space, wherein cords of one of the cross belt members extends in a direction opposite to cords of the other one of the cross belt members with respect to the equatorial plane." Claim 1 further requires "mounting the tire onto a front wheel of a vehicle such that the cords of the pair of cross belt members have an acute angle of inclination with respect to the equatorial plane in a forward rotating direction of the tire." Claim 2 further requires "mounting the tire onto a rear wheel of a vehicle such that the cords of the pair of cross belt members have an obtuse angle of inclination with respect to the equatorial plane in

a forward rotating direction of the tire.” Independent claim 3 recites similar limitations to both claims 1 and 2.

The Examiner maintains that Armellin discloses all of the features of each of independent claims 1-3. Specifically, in the first full paragraph of page 4, the Examiner argues that (1) as for the front tire, the cross belt members for the front tires of claims 1 and 3 read on the lower left narrow cord containing strip and the upper right cord containing strip of the tire in Figure 4 of Armellin, and that (2) as for the rear tire, the cross belt members for the rear tires of claims 2 and 3 read on the upper left narrow cord containing strip and the lower right cord containing strip of the tire in Figure 4 of Armellin.

However, Applicant respectfully submits that Armellin does not teach or suggest a pair of cross belt members arranged in parallel to each other in a common plane in a circumferential direction of the tire so as to be disposed on opposites sides of an equatorial plane of the tire, wherein cords of one of the cross belt members extend in a direction opposite to cords of the other one of the cross belt members with respect to the equatorial plane, as claimed. Rather, Armellin discloses two pairs of strips 9a and 9b (each pair of strips 9a (or 9b) is constituted by two separate strip portions 9a and 9a (or 9b and 9b) separated by a space “a”) which are radially superimposed, wherein reinforcing rods 9c of the first pair of strips 9a extend in the same direction and reinforcing rods 9c of the second pair of strips 9b extend in the same direction. Although the reinforcing rods 9c of the first pair of strips 9a extend in a direction opposite to the reinforcing rods 9c of the second pair of strips 9b, the first pair of strips 9a and the second pair of strips 9b are disposed in different planes in the circumferential direction of tire.

Similarly, Armellin does not teach or suggest (i) mounting the tire onto a front wheel of a vehicle such that the cords of the pair of cross belt members have an acute angle of inclination with respect to the equatorial plane in a forward rotating direction of the tire, as recited in claims 1 and 3, or (ii) mounting the tire onto a rear wheel of a vehicle such that the cords of the pair of cross belt members have an obtuse angle of inclination with respect to the equatorial plane in a forward rotating direction of the tire, as recited in claims 2 and 3.

As discussed on page 5, lines 2-11, of the present application, by making the cord inclinations of the belt members in the front and rear tires opposite to each other, the rigidity required against external force acting on the front wheel in braking and external force acting on the rear wheel in traction can effectively be ensured. On the contrary, as the cords (reinforcing elements 9c) in two radially superimposed strips 9a and 9b constituting the layer 9 of the tire shown in FIG. 4 of Armellin symmetrically intersect with each other with respect to the equatorial plane, even though the tire is mounted on the front wheel, it can not effectively enhance the rigidity against external force in braking, and even through the tire is mounted on the rear wheel, it can not effectively enhance the rigidity against the external force in traction.

Accordingly, Applicant respectfully submits that independent claims 1-3, as well as dependent claims 4-6, should be allowable because the cited reference does not teach or suggest all of the features of the claims.

By this Amendment, Applicant has added new claims 7-12 which are directed to a pneumatic radial tire in accordance with the present invention. Applicant respectfully submits that claim 7-12 should be allowable for the same reasons as claims 1-6. In particular, the prior

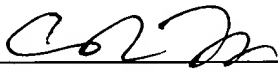
AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Patent Application No. 09/840,824

art does not teach or suggest "first and second cross belt members arranged in parallel to each other in a common plane in a circumferential direction of the tire so as to be disposed on opposites sides of an equatorial plane of the tire and separated by an opening space, wherein cords of the first cross belt member extend in a direction opposite to cords of the second cross belt member with respect to the equatorial plane," as claimed.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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PATENT TRADEMARK OFFICE

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The specification is changed as follows:

Page 8, fourth full paragraph:

As shown in Figs. 1-3, a spiral belt 26 being a monospiral belt formed by spirally [winging] winding a cord along the circumferential direction of the crown portion 18 is embedded in the rubber material forming the crown portion 18 at the outer circumferential side of the carcass 12, and a pair of cross belt members 28A, 28B extending in parallel to each other are arranged on the outer circumferential side of the spiral belt 26 at both sides of the equatorial plane CL of the tire, respectively.

IN THE CLAIMS:

The claims are amended as follows:

1. (Amended) [In a] A method of mounting a pneumatic radial tire comprising a spiral belt formed by spirally winding a cord along a circumferential direction of a crown portion of the tire, and a pair of cross belt members arranged in parallel to each other [at both] in a common plane in a circumferential direction of the tire so as to be disposed on opposites sides of an equatorial plane of the tire and [at a given] separated by an opening space, wherein cords of [which] one of the cross belt members [being extended at a given cord angle] extend in a direction opposite [directions] to [each] cords of the other one of the cross belt members with respect to the equatorial plane, [an improvement wherein] the method comprising mounting the

tire [is mounted as a front tire] onto a front wheel of a vehicle such that the cords of the pair of cross belt members [are arranged so as to finally contact a portion of the cord in the belt member facing the opening space with ground] have an acute angle of inclination with respect to the equatorial plane in a forward rotating direction of the tire.

2. (Amended) [In a] A method of mounting a pneumatic radial tire comprising a spiral belt formed by spirally winding a cord along a circumferential direction of a crown portion of the tire, and a pair of cross belt members arranged in parallel to each other [at both] in a common plane in a circumferential direction of the tire so as to be disposed on opposites sides of an equatorial plane of the tire and [at a given] separated by an opening space, wherein cords of [which] one of the cross belt members [being extended at a given cord angle] extend in a direction opposite [directions] to [each] cords of the other one of the cross belt members with respect to the equatorial plane, [an improvement wherein] the method comprising mounting the tire [is mounted as a rear tire] onto a rear wheel of a vehicle such that the cords of the pair of cross belt members [are arranged so as to firstly contact a portion of the cord in the belt member facing the opening space with ground] have an obtuse angle of inclination with respect to the equatorial plane in a forward rotating direction of the tire.

3. (Amended) [In a] A method of mounting [a] first and second pneumatic radial [tire] tires each comprising a spiral belt formed by spirally winding a cord along a circumferential direction of a crown portion of the tire, and a pair of cross belt members arranged in parallel to

each other [at both] in a common plane in a circumferential direction of the tire so as to be disposed on opposites sides of an equatorial plane of the tire and [at a given] separated by an opening space, wherein cords of [which] one of the cross belt members [being extended at a given cord angle] extend in a direction opposite [directions] to [each] cords of the other one of the cross belt members with respect to the equatorial plane, [an improvement wherein the] the method comprising mounting the first tire [is mounted as a front tire] onto a front wheel of a vehicle such that the cords of the pair of cross belt members [are arranged so as to finally contact a portion of the cord in the belt member facing the opening space with ground] have an acute angle of inclination with respect to the equatorial plane in a forward rotating direction of the first tire, and [another] mounting the second tire [is mounted as a rear tire] onto a rear wheel of the vehicle such that the cords of the pair of cross belt members [are arranged so as to firstly contact a portion of the cord in the belt member facing the opening space with ground] have an obtuse angle of inclination with respect to the equatorial plane in [a] the forward rotating direction of the second tire.

Claims 7-12 are added as new claims.